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Amperometric cholinesterase biosensors with carbon paste electrodes modified with cobalt phthalocyanine

Shaidarova L., Ziganshina S., Medyantseva E., Budnikov G.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Biosensors based on a carbon paste electrode with immobilized cholinesterase and cobalt(II) phthalocyanine as a mediator are studied. Electrochemical characteristics of the biosensors are investigated in relation to the carbon paste composition, the enzyme and mediator immobilization procedures, nature of the protective film and procedure of its application, and also storage conditions of the electrodes. A method is suggested for fabricating a cholinesterase biosensor with cobalt(II) phthalocyanine mediator, providing the maximum electrocatalytic response in electrooxidation of butyrylthiocholine iodide (substrate for cholinesterase).

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